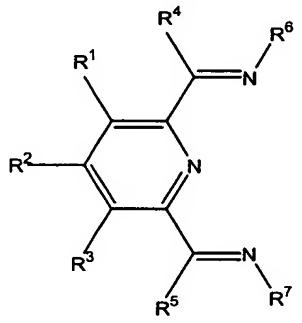
CLAIMS

What is claimed is:

1. A process for the preparation of α-olefins by the catalyzed oligomerization of ethylene using as part of a catalyst system a complex of a late transition metal with a tridentate ligand wherein a process stream comprising said α-olefins and said catalyst system is produced, wherein the improvement comprises, deactivating said catalyst system by adding to said process stream one or more organic compounds having a pKa of about 2 to about 20.

2. The process as recited in claim 1 wherein said late transition metal is iron and said ligand is a 2,6-pyridinedicarboxaldehyebisimine or a 2,6-diacylpyridinebisimine.

3. The process as recited in claim 2 wherein said ligand has the formula



(I)

wherein:

R^1, R^2 and R^3 are each independently hydrogen, hydrocarbyl, substituted hydrocarbyl or an inert functional group, provided that any two of R^1, R^2 and R^3 vicinal to one another taken together may form a ring;

R^4 and R^5 are each independently hydrogen, hydrocarbyl, substituted hydrocarbyl or an inert functional group;

R^6 and R^7 are each independently a substituted aryl having a first ring atom bound to the imino nitrogen, provided that:

in R^6, a second ring atom adjacent to said first ring atom is bound to a halogen, a primary carbon group, a secondary carbon group or a tertiary carbon group; and further provided that

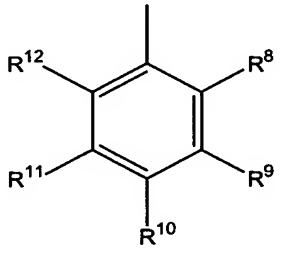
in R^6, when said second ring atom is bound to a halogen or a primary carbon group, none, one or two of the other ring atoms in R^6 and R^7 adjacent to said first ring atom are bound to a halogen or a primary carbon group, with

the remainder of the ring atoms adjacent to said first ring atom being bound to a hydrogen atom; or

in R^6, when said second ring atom is bound to a secondary carbon group, none, one or two of the other ring atoms in R^6 and R^7 adjacent to said first ring atom are bound to a halogen, a primary carbon group or a secondary carbon group, with the remainder of the ring atoms adjacent to said first ring atom being bound to a hydrogen atom; or

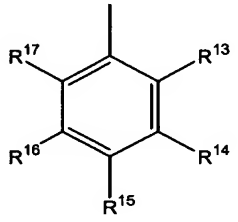
in R^6, when said second ring atom is bound to a tertiary carbon group, none or one of the other ring atoms in R^6 and R^7 adjacent to said first ring atom are bound to a tertiary carbon group, with the remainder of the ring atoms adjacent to said first ring atom being bound to a hydrogen atom.

4. The process as recited in claim 3 wherein R^6 is



(VI)

and R^7 is



(VII)

wherein:

R^8 is a halogen, a primary carbon group, a secondary carbon group or a tertiary carbon group; and

R^9, R^{10}, R^{11}, R^{14}, R^{15}, R^{16} and R^{17} are each independently hydrogen, hydrocarbyl, substituted hydrocarbyl or a functional group;

provided that:

when R^8 is a halogen or primary carbon group none, one or two of R^{12}, R^{13} and R^{17} are a halogen or a primary carbon group, with the remainder of R^{12}, R^{13} and R^{17} being hydrogen; or

when R^8 is a secondary carbon group, none or one of R^{12}, R^{13} and R^{17} is a halogen, a primary carbon group or a secondary carbon group, with the remainder of R^{12}, R^{13} and R^{17} being hydrogen; or

when R^8 is a tertiary carbon group, none or one of R^{12}, R^{13} and R^{17} is tertiary carbon group, with the remainder of R^{12}, R^{13} and R^{17} being hydrogen; and further provided that any two of R^8, R^9, R^{10}, R^{11}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16} and R^{17} vicinal to one another, taken together may form a ring.

5. The process as recited in claim 5 wherein:

R^1, R^2 and R^3 are hydrogen;

R^4 and R^5 are methyl;

R^9, R^{10}, R^{11}, R^{12}, R^{14}, R^{15}, R^{16} and R^{17} are all hydrogen, R^{13} is methyl, and R^8 is methyl; or

R^9, R^{10}, R^{11}, R^{12}, R^{14}, R^{15}, R^{16} and R^{17} are all hydrogen, R^{13} is ethyl, and R^8 is ethyl; or

R^9, R^{10}, R^{11}, R^{12}, R^{14}, R^{15}, R^{16} and R^{17} are all hydrogen, R^{13} is isopropyl, and R^8 is isopropyl; or

R^9, R^{10}, R^{11}, R^{12}, R^{14}, R^{15}, R^{16} and R^{17} are all hydrogen, R^{13} is n-propyl, and R^8 is n-propyl; or

R^9, R^{10}, R^{11}, R^{12}, R^{14}, R^{15}, R^{16} and R^{17} are all hydrogen, R^{13} is chloro, and R^8 is chloro; or

R^9, R^{10}, R^{11}, R^{12}, R^{14}, R^{15}, R^{16} and R^{17} are all hydrogen, R^{13} is trifluoromethyl, and R^8 is trifluoromethyl.

6. The process as recited in claim 1 wherein one or more alkylating or hydriding agents are present.

7. The process as recited in claim 1 wherein one or more alkylaluminum compounds are also present.

8. The process as recited in claim 1 wherein said pKa is about 3 to about 18.

9. The process as recited in claim 1 wherein said organic compound is an alcohol, phenol, or carboxylic acid.

10. The process as recited in claim 3 wherein said organic compound is an alcohol, phenol, or carboxylic acid.

11. The process as recited in claim 7 wherein said organic compound is an alcohol, phenol, or carboxylic acid.

12. The process as recited in claim 9 wherein said organic compound is an alcohol.

13. The process as recited in claim 9 wherein said organic compound is a carboxylic acid.

14. The process as recited in claim 1 wherein said organic compound is monofunctional.

15. The process as recited in claim 1 wherein a stoichiometric excess of said organic compound is added.